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Applicants: Tatjana Dragic and William C. Olson

Serial No.: 10/086,814

Filed : February 28, 2002

For : SULFATED CCR5 PEPTIDES FOR HIV-1 INFECTION

1185 Avenue of the Americas
New York, New York 10036
January 22, 2003

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT

In accordance with their duty of disclosure under 37 C.F.R. §1.56, applicants direct the Examiner's attention to the following references which are listed on the PTO-1449 form attached hereto as **Exhibit A** and are also listed below. Copies of the documents listed below as items 1-12 are attached here to as **Exhibits 1-12** respectively.

1. Baba, et al., (1998) "Mechanism of Inhibitory Effect of Dextran Sulfate and Heparin on Replication of Human Immunodeficiency Virus *In Vitro*", Proc. Natl. Acad. Sci. U.S.A. 85:6132-6135 (**Exhibit 1**);
2. Baulerle and Huttner, (1987) "Tyrosine Sulfation Is a *trans*-Golgi-specific Protein Modification", Cell Biol. 105:2655-2663 (**Exhibit 2**);
3. Blanpain, C., et al. (1999) "Multiple Charged and Aromatic Residues in CCR5 Amino-terminal Domain Are Involved in High Affinity Binding of Both Chemokines and HIV-1 Env Protein", J. Biol. Chem. 274:34719-34727 (**Exhibit 3**);

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4. Cormier, E.G., et al., (2000) "Specific Interaction of CCR5 Amino-terminal Domain Peptides Containing Sulfotyrosines With HIV-1 Envelope Glycoprotein gp120", Proc. Nat. Acad. Sci. U.S.A. 97:5762-5767 **(Exhibit 4)**;
5. Doranz, B. J. et al. (1997) "Two Distinct CCR5 Domains Can Mediate Coreceptor Usage By Human Immunodeficiency Virus Type 1", J. Virol. 71:6305-6314 **(Exhibit 5)**;
6. Dragic, T. et al., (1998) "Amino-terminal Substitutions in The CCR5 Coreceptor Impair gp120 Binding and Human Immunodeficiency Virus Type 1 Entry", J. Virol. 72:279-285 **(Exhibit 6)**;
7. Farzan, M., et al., (1998) "A Tyrosine-Rich Region in the N Terminus of CCR5 Is Important for Human Immunodeficiency Virus Type 1 Entry and Mediates an Association Between gp120 and CCR5", J. Virol. 72:1160-1164 **(Exhibit 7)**;
8. Farzan M., et al. (2000) "A Tyrosine-sulfated Peptide Based on the N Terminus of CCR5 Interacts with a CD4-enhanced Epitope of the HIV-1 gp120 Envelope Glycoprotein and Inhibits HIV-1 Entry", J. Biol. Chem. 275:33516-33521 **(Exhibit 8)**;
9. Farzan, M., et al. (1999) "Tyrosine Sulfation of the Amino Terminus of CCR5 Facilitates HIV-1 Entry", Cell 96:667-676 **(Exhibit 9)**;
10. Hwang, S. S., et al., (1991) "Identification of the Envelope V3 Loop as the Primary Determinant of Cell Tropism in HIV-1", Science 253:71-74 **(Exhibit 10)**;

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11. Rabut, G. E., et al., (1998) "Alanine Substitutions of Polar and Nonpolar Residues in the Amino-Terminal Domain of CCR5 Differently Impair Entry of Macrophage-and Dualtropic Isolates of Human Immunodeficiency Virus Type 1", J. Virol. 72:3464-3468 (**Exhibit 11**);
12. Rodriguez, G., et al., (1995) "Mediation of Human Immunodeficiency Virus Type 1 Binding by Interaction of Cell Surface Heparan Sulfate Proteoglycans with the V3 Region of Envelope gp120-gp41", J. Virol. 69:2233-2239 (**Exhibit 12**).

The Examiner is respectfully requested to make these references of record in the present application by initialing and dating the entries on the enclosed form PTO-1449 and returning a copy thereof to applicants' representatives.



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If a telephone interview would be of assistance in advancing prosecution of the subject application, applicants' undersigned attorneys invite the Examiner to telephone either of them at the number provided below.

Pursuant to 37 C.F.R. §1.97(b)(3), no fee is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

I hereby certify that this correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.	
<i>Mark A. Farley</i>	<i>1-22-03</i>
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Sheet 1 of 1

Form PTO 1449 JAN 27 2003 U.S. DEPT. OF COMMERCE PATENT & TRADEMARK OFFICE		U.S. Department of Commerce Patent and Trademark Office		Atty. Docket No. 61010-AB-1		Serial No. JAN 30 2003 10/086,814	
INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)				Applicant(s) Tatjana Dragic and William C. Olson		TECH CENTER 1600/21	
				Filing Date February 28, 2002		Group Art Unit	
U.S. PATENT DOCUMENTS							
Examiner Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
FOREIGN PATENT DOCUMENTS							
Examiner Initials		Document Number	Date	Name	Class	Subclass	Translation Yes No
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
		Baba, et al., (1998) "Mechanism of Inhibitory Effect of Dextran Sulfate and Heparin on Replication of Human Immunodeficiency Virus <i>In Vitro</i> ", <u>Proc. Natl. Acad. Sci. U.S.A.</u> 85:6132-6135 (Exhibit 1);					
		Baulerle and Huttner, (1987) "Tyrosine Sulfation Is a <i>trans</i> -Golgi-specific Protein Modification", <u>Cell Biol.</u> 105:2655 (Exhibit 2);					
		Blanpain, C., et al. (1999) "Multiple Charged and Aromatic Residues in CCR5 Amino-terminal Domain Are Involved in High Affinity Binding of Both Chemokines and HIV-1 Env Protein", <u>J. Biol. Chem.</u> 274:34719-34727 (Exhibit 3);					
		Cormier, E.G., et al., (2000) "Specific Interaction of CCR5 Amino-terminal Domain Peptides Containing Sulfotyrosines With HIV-1 Envelope Glycoprotein gp120" <u>Proc. Nat. Acad. Sci. U.S.A.</u> 97:5762-5767 (Exhibit 4);					
		Doranz, B. J. et al. (1997) "Two Distinct CCR5 Domains Can Mediate Coreceptor Usage By Human Immunodeficiency Virus Type 1", <u>J. Virol.</u> 71:6305-6314 (Exhibit 5);					
		Dragic, T. et al., (1998) "Amino-terminal Substitutions in The CCR5 Coreceptor Impair gp120 Binding and Human Immunodeficiency Virus Type 1 Entry", <u>J. Virol.</u> 72:279-285 (Exhibit 6);					
		Farzan, M., et al., (1998) "A Tyrosine-Rich Region in the N Terminus of CCR5 Is Important for Human Immunodeficiency Virus Type 1 Entry and Mediates an Association Between gp120 and CCR5", <u>J. Virol.</u> 72:1160-1164 (Exhibit 7);					
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		Farzan, M., et al. (1999) "Tyrosine Sulfation of the Amino Terminus of CCR5 Facilitates HIV-1 Entry", <u>Cell</u> 96:667-676 (Exhibit 9);					
		Hwang, S. S., et al., (1991) "Identification of the Envelope V3 Loop as the Primary Determinant of Cell Tropism in HIV-1" <u>Science</u> 253:71-74 (Exhibit 10);					
		Rabut, G. E., et al., (1998) "Alanine Substitutions of Polar and Nonpolar Residues in the Amino-Terminal Domain of CCR5 Differently Impair Entry of Macrophage-and Dualtropic Isolates of Human Immunodeficiency Virus Type 1", <u>J. Virol.</u> 72:3464-3468 (Exhibit 11);					
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EXAMINER				DATE CONSIDERED			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

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 (Exhibit A)